

Patient information from the BMJ Group

Ear pain during air travel

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Ear pain during air travel

Many people get pain in their ears when they take a flight. The pain can be especially bad as the plane gets ready to land. But it will probably go away quite quickly once you're on the ground. There are some things you can do to try to stop your ears hurting when you fly.

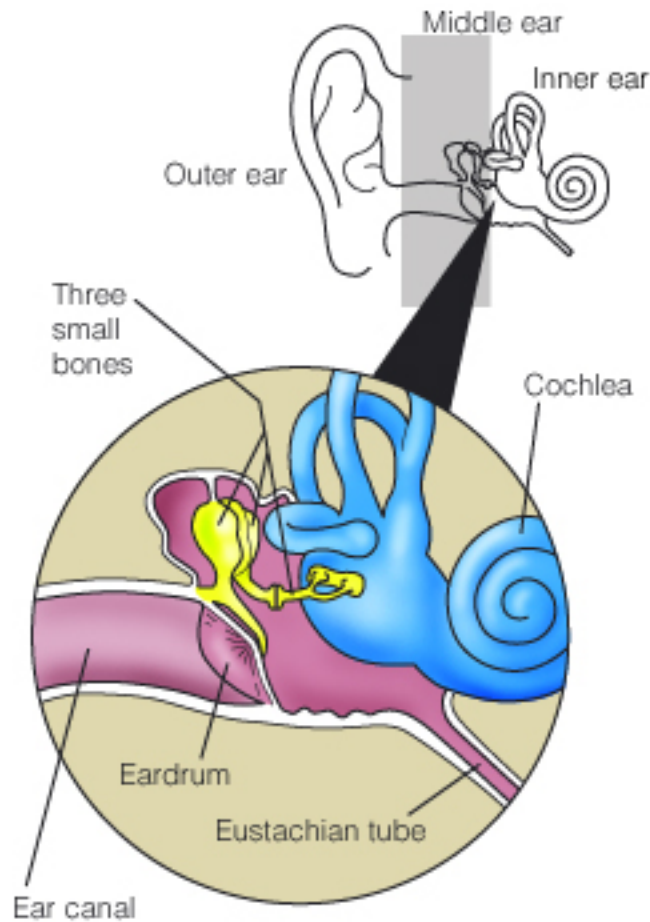
We've brought together the best research on ear pain during air travel and weighed up the evidence about how to treat it. You can use our information to talk to your doctor about what treatments are best for you.

What is ear pain during air travel?

You get pain in your ear during air travel when the pressure inside your ear isn't the same as the pressure outside your ear.

To understand how this happens, it helps to know a little about your ears.

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Your eustachian tube helps keep the air pressure in your middle ear the same as outside your body.

- Your **outer ear** is the part of your ear that you can see. It 'catches' the sounds around you.
- The hole in the middle of your outer ear is your **ear canal**. It carries the sounds into your ear.
- Stretched across the inner end of your ear canal is your **eardrum**. This thin tissue moves when sounds reach it.
- Behind your eardrum is your **middle ear**. It's usually filled with air.
- Your **eustachian tube** connects your middle ear to the back of your nose (just above the roof of your mouth). This tube is closed most of the time.

Normally the air pressure in your middle ear is the same as the air pressure outside your body. ^[1] Your eustachian tube helps to keep it this way. When you swallow or yawn, the tube opens briefly. This lets a tiny bubble of air flow up the tube and into your middle ear. But this air gradually gets absorbed by the tissues around your middle ear. So you need

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to keep swallowing to let your eustachian tube open from time to time. This makes the air pressure inside your ear the same as that outside your ear.



You are most likely to get ear pain during take-off and landing.

When you travel in an aeroplane, the air pressure around you changes quickly, especially during take-off and landing.

Air pressure is highest near the ground and lessens as you get higher. But you may not be able to swallow fast enough to keep the middle ear filled with air.

This means that the air pressure inside your middle ear and your outer ear is different, and your eardrum gets pulled inwards towards your brain.

Your ear can feel blocked, and it can be very painful. Your eardrum can burst (or perforate). But this doesn't happen to most people.

If your eustachian tube is blocked for some reason, it can be especially difficult to get enough air into your ear.^[2] So you're more likely to get ear pain during a flight if:

- Your nose or sinuses are blocked because of an allergy or a cold. This often means your eustachian tube is blocked too
- You're a child. Young children have shorter and more horizontal (flatter) eustachian tubes than adults. This means the tube gets blocked more easily.

What are the symptoms of ear pain during air travel?

You can get a lot of pain in your ears when you fly, especially during take-off and landing. Your ears may also feel stuffy or blocked. But these symptoms will probably go away soon after you land.

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You may get some or all of these symptoms when you fly: ^[3]

- Pain in one or both of your ears
- A feeling that your ears are blocked
- A feeling of dizziness when you stand up
- Problems hearing
- Ringing in your ears (tinnitus)
- A hole in your eardrum (a perforation). This is rare.

How common is ear pain during air travel?

Many people get pain in their ears when they fly. But whether people get ear pain depends on the type of aircraft they're flying in, how high the plane flies, and whether their ears are already blocked.

One study found that 20 in 100 adults got some ear problems when they travelled by air. And twice as many children (40 in 100) had pain in their ears. ^[4]

What treatments work for ear pain during air travel?

If your ears are blocked because you've got a cold or an infection, it may be better not to fly. But you may not want to, or be able to, cancel a holiday or business trip just for this reason. If you have to fly with a cold or a blocked ear, there are some simple things you can do to reduce your chances of getting ear pain during the flight.

- Yawning, swallowing, or blowing hard while pinching your nose can help reduce the pressure in your ears. You should feel your ears 'pop'.
- Blowing up a special balloon with your nose can help prevent ear pain during a flight and help clear symptoms after a flight.
- Taking a decongestant tablet or syrup before take-off may stop you getting pain in your ears if you're an adult. But we don't know if this works for children too.
- Some people use a decongestant nasal spray before they fly. But more research needs to be done before we can say for certain whether this prevents ear pain.

Which treatments work best? We've looked at the best research and given a rating for each treatment according to how well it works.

Treatment Group 1

Treatments for ear pain during air travel

Treatments that are likely to work

- [Nasal balloon](#)
- [Decongestant tablets or syrup](#)

Treatments that need further study

- [Decongestant nasal sprays](#)

What will happen to me?

You'll probably find that the pain in your ears from flying goes away soon after you land.

We couldn't find any information on how many people get a hole (a perforation) in their eardrum from flying. But it's extremely rare in people who take commercial flights.^[5] Your eardrum is the thin layer of tissue that stretches across the inner end of your ear canal. To learn more, see [What is ear pain during air travel?](#)

Studies of people whose eardrum was damaged from flying in military aircraft showed that the hole healed over by itself.^[6] Most people don't get any long-term problems.

Treatments:

Nasal balloon

In this section

Blowing up a special balloon can stop you getting pain during a flight and can help clear blocked ears after you have landed.^[7]

The name of this device is Otovent. It can be prescribed by your doctor or you can buy it from a pharmacist. The kit costs about £7. It comes with five balloons, each of which can be used a few times.

The balloon is attached to a small tube. You put the tube in one nostril. You then blow up the balloon through that nostril, keeping the other nostril closed with a finger, and keeping your mouth shut. You then stop blowing and breathe normally, and the air goes out of the balloon. You can repeat this process again, using the other nostril.

In one study, 6 in 100 of people who used the nasal balloon on a flight got ear pain. Out of those who didn't use the balloon, 15 in 100 got ear pain.^[7] After they had landed, all the people in the study were told to blow out, without using the balloon, while keeping their mouth and nose closed. This helped to unblock some people's ears. For the people

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whose ears were still blocked, blowing into the nasal balloon helped unblock the ears in 70 in 100 people. ^[7]

The study didn't report any harmful effects from using this device. But you may feel a bit awkward about using it in public.

Decongestant tablets or syrup

In this section

Taking a **decongestant** tablet or syrup before a flight can help you avoid ear pain if you're an adult. But we don't know if this treatment works for children, as there hasn't been enough research to say. Some decongestants can have side effects such as restlessness, sleep problems, and making your heart race. ^[8]

You can buy decongestants that contain a drug called pseudoephedrine from a pharmacy. You won't find pseudoephedrine on the shelves, so you'll need to ask for it at the counter. Also, you can only buy one pack at a time. ^[9] This is because it's possible to use pseudoephedrine to make illegal drugs.

Decongestants come as tablets and syrups. Brand names include Non Drowsy Sudafed Decongestant Tablets and Galpseud. It's worth checking the pack for the active ingredient. Some Sudafed products contain a drug called phenylephrine, not pseudoephedrine.

In the studies we found, adults took 120 milligrams of pseudoephedrine at least half an hour before take-off. ^[10] ^[11]

Two studies showed that about 30 in 100 of the adults who took pseudoephedrine tablets or syrup before they took a flight got ear problems. ^[10] ^[11] But between 50 in 100 and 70 in 100 of those who took a dummy treatment (a **placebo**) had ear problems.

A study of children aged between 6 months and 6 years found that taking pseudoephedrine tablets or syrup didn't make any difference in whether they got ear pain. ^[12]

In the studies we found, some people felt drowsy and got a dry mouth after taking pseudoephedrine. ^[10] Some people also got an irritated nose and an upset stomach, but these side effects were not as common as the others. Decongestants that contain pseudoephedrine can also make you feel restless. ^[8]

Decongestant nasal sprays

In this section

We can't say whether using a decongestant spray will stop you getting ear pain during a flight, as there hasn't been much research on this.

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You can buy decongestant sprays from a pharmacy. Decongestant sprays that you put up your nose usually contain one of these drugs:

- Ephedrine
- Oxymetazoline (brand name Vicks Sinex)
- Xylometazoline (Otrivine and Otradrops).

One study looked at adults who used a decongestant spray containing oxymetazoline at least one hour before take-off. It found the spray didn't help with ear pain.^[10] About 15 in 100 people who used the spray said they got an irritated nose.

More studies are needed to find out if decongestant sprays help to prevent ear pain during air travel.

Further informations:

Glossary:

sinuses

Sinuses are small pockets of air inside your skull. You have them in your cheek bones, behind and between your eyes and in your forehead.

allergy

If you have an allergy to something (such as pollen or a medicine), your body always overreacts to it. The reaction happens because your immune system (your body's system for fighting infection) is too sensitive to it.

decongestant

A decongestant is a medicine that clears up swelling (congestion) in the nose or in the chest. It can unblock a stuffy nose and make it easier to breathe.

placebo

A placebo is a 'pretend' or dummy treatment that contains no active substances. A placebo is often given to half the people taking part in medical research trials, for comparison with the 'real' treatment. It is made to look and taste identical to the drug treatment being tested, so that people in the studies do not know if they are getting the placebo or the 'real' treatment. Researchers often talk about the 'placebo effect'. This is where patients feel better after having a placebo treatment because they expect to feel better. Tests may indicate that they actually are better. In the same way, people can also get side effects after having a placebo treatment. Drug treatments can also have a 'placebo effect'. This is why, to get a true picture of how well a drug works, it is important to compare it against a placebo treatment.

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